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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,315	04/13/2005	Yuki Katayama	00005.001258	6439

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EXAMINER	
WOOD, AMANDA P	

ART UNIT	PAPER NUMBER
1657	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,315	KATAYAMA ET AL.	
	Examiner	Art Unit	
	Amanda P. Wood	1657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) *6-21 and 27-37* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 22-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/05, 7/05, 6/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I, claims 1-5 and 22-26 in the reply filed on 12 July 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 1-5 and 22-26 are presented for consideration on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 and 22-26 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: (a) obtaining a value from measuring either the formed hydrogen peroxide or a reduced coenzyme, and (b) quantifying or calculating the HDL cholesterol concentration in the sample by correlating the value obtained from the previous measuring step with a previously prepared calibration curve.

The method, as currently claimed, is incomplete because it ends with measuring the formed hydrogen peroxide or reduced coenzyme, which provides a value that is

meaningless without a calibration curve to indicate what level of HDL cholesterol that value corresponds to in the sample.

Claims 1-5 and 22-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, Applicant recites the phrase "measuring the formed hydrogen peroxide or a reduced coenzyme" in line 6 of Claim 1, in lines 8-9 of claim 22, and in lines 7-8 of claim 23. It is unclear as to in which of options (i) or (ii) in claim 1 Applicant intends to measure hydrogen peroxide versus measuring reduced coenzyme (i.e., it appears that one would measure reduced coenzyme with option (ii), based upon the presence of oxidized coenzyme in the assay, but the wording of the claim language makes it appears as though either hydrogen peroxide or reduced coenzyme could be measured with either of the two assay options). Adding a measuring step indicating what is to be measured after each assay option may help to clarify the claim language. Claims 22 and 23 have the same unclear claim language problem as claim 1 regarding the measurement of hydrogen peroxide and a reduced coenzyme.

Furthermore, the phrase "measuring the formed hydrogen peroxide or a reduced coenzyme in claims 1, 22, and 23 is deemed to be indefinite because it is unclear how hydrogen peroxide or a reduced coenzyme are actually measured. The claims do not recite any method steps or any language which indicates measuring these two products in the presence of the necessary reagents for visualization, detection, or measurement of any kind (i.e., Applicant does not claim any limitations to measuring hydrogen

peroxide in the presence of reagents for quantitative determination, e.g., a peroxidative substance and a chromogen which oxidizes, nor does Applicant claim any limitations to measuring a reduced coenzyme in the presence of reagents for quantitative determination, e.g., a reagent which converts the formed reduced coenzyme into a detectable substance, such as a dye).

In addition, Claims 1 and 23 recite the phrase "in an aqueous medium comprising" in lines 4-5 (claim 1) and line 4 (claim 23). It is unclear whether this limitation refers to only the second assay option (ii), or to both assay options (i) and (ii) as being "in an aqueous medium." Currently, the claims seem to read as though only assay option (ii) is in an aqueous medium comprising the claimed components.

Claim 22 recites the phrase "or ii) cholesterol esterase, an oxidized coenzyme and cholesterol dehydrogenase in an aqueous medium comprising i) nonionic surfactant, polyanion and albumin or ii) a surfactant selected from the group consisting of polyoxyethylene alkylamine or polyoxyethylene alkenylamine and a surfactant selected from the group consisting of polyoxyethylene polycyclic phenyl ether sulfate and an anionic bile acid derivative" in lines 3-8. It is unclear whether both the first and second assay options Applicant recites in lines 2-3 are both in an aqueous medium or whether only assay option (ii) is in an aqueous medium. Furthermore, to provide clarity in claim 22, Applicant may want to consider using some other form of indicating the options for the components of the aqueous medium that would differ from that previously used in the claim for indicating the two assay options.

Claims 1, 22, and 23 recite the limitation "the formed hydrogen peroxide" in line 6 (claim 1), line 8 (claim 22), and line 7 (claim 23). There is insufficient antecedent basis for this limitation in the claims.

All other claims depend directly or indirectly from rejected claims and are, therefore, also rejected under USC 112, second paragraph for the reasons set forth above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Takayuki et al (JP9285298).

A method of quantitatively determining cholesterol in high-density lipoprotein in a sample is claimed.

Takayuki et al teach a method of measuring HDL-cholesterol in a specimen such as serum or plasma by treating the specimen with a cholesterol esterase and cholesterol oxidase in the presence of albumin separately derived from the specimen. Takayuki et al teach that the specimen is treated with a polyanion such as a sulfated polysaccharide, particularly dextran sulfate, as well as with a nonionic surfactant. Takayuki et al teach that by using peroxidase and a suitably oxidizable color fixative, the

amount of hydrogen peroxide generated can be determined. In addition, Takayuki et al teach that cholesterol dehydrogenase may also be used with cholesterol esterase in combination with a coenzyme so as to use well-known methods of detecting reduced enzymes. Furthermore, Takayuki et al teach that PEG, or polyethylene glycol, is used as a nonionic surfactant in the methods of Takayuki et al, although any well-known nonionic surfactants may be used, according to Takayuki et al (see, for example, English abstract, and in English machine-translation version-pg. 6-8).

Therefore, the reference is deemed to anticipate the instant claim above.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Hama et al (WO97/40376).

Hama et al teach a method for specifically assaying HDL cholesterol in which serum or plasma samples having HDL cholesterol are brought into contact with cholesterol esterase, cholesterol oxidase and bile acid or its salt in the presence of albumin and then the compounds consumed or formed by the reactions between the cholesterol and each of the enzymes are measured. In particular, Hama et al teach that having a nonionic surfactant, albumin and bile acid or its salt at a particular concentration is necessary for reaction to occur with HDL cholesterol specifically (see, for example, English Abstract and pg. 9 of English machine-translation printout).

Therefore, the reference is deemed to anticipate the instant claim above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayuki et al and Hama et al in view of Miki et al (US 6,162,607).

Takayuki et al and Hama et al are relied upon for the reasons set forth above.

Takayuki et al and Hama et al do not expressly teach a method wherein the nonionic surfactant is polyoxyethylene alkylamine, polyoxyethylene alkenylamine, or polyoxyethylene polycyclic phenyl ether sulfate.

Miki et al beneficially teach that surfactants for measuring HDL, particularly nonionic surfactants such as polyoxyethylene oleyl ether, in addition to others, preferably those having HLB values of 12 to 17 are useful in reagent solutions which measure HDL cholesterol. Miki et al beneficially teach that those surfactants can be used alone or in combination (see, for example, col. 5, lines 20-60).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the methods disclosed by Takayuki et al, based upon the beneficial teachings provided by Hama et al, with respect to the art-recognized method of using bile acids or their salts at particular concentrations in combination with nonionic surfactants, cholesterol esterase, cholesterol oxidase, and albumin to measure HDL cholesterol, for the purpose of specifically reacting the enzymes with HDL

cholesterol versus other cholesterol, and by Miki et al, with respect to the art-recognized method of using nonionic surfactants having HLB values from 12-17, such as polyoxyethylene oleyl ether, as discussed above. Furthermore, Takayuki et al particularly point out that any nonionic surfactant may be used in their methods, while Hama et al teach that using bile acids or their salts would be beneficial to use in combination with the nonionic surfactant and enzymes so as to specifically react with the HDL cholesterol compared to the other cholesterols present in a specimen. Furthermore, based upon these beneficial teachings provided by Takayuki et al and Hama et al, and the beneficial teaching provided by Miki et al that nonionic surfactants such as polyoxyethylene oleyl ether and others with HLB values between 12 and 17 are useful for specifically reacting with HDL cholesterol, it would have been both obvious and beneficial for the skilled artisan to use the methods taught by Takayuki et al, Hama et al, and Miki et al so as quantify cholesterol in HDL in a sample. The result-effective adjustment of particular conventional working conditions (e.g., using a particular nonionic surfactant and/or a particular polyanion) is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole, was *prima facie* obvious to one of ordinary skill in the art at the time the claimed invention was made, as evidenced by the cited references, especially in the absence of evidence to the contrary.

Conclusion

No claims allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda P. Wood whose telephone number is (571) 272-8141. The examiner can normally be reached on M-F 8:30AM -5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on (571) 272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

APW
Examiner
Art Unit 1657

APW

CHRISTOPHER R. TATE
PRIMARY EXAMINER